PB82-203357

Final Environmental Impact Statement Proposed Wastewater Management Program, Livermore-Amador Valley, Alameda County, California (Summary)

Livermore-Amador Valley Wastewater Management Program, Berkeley, CA

Prepared for

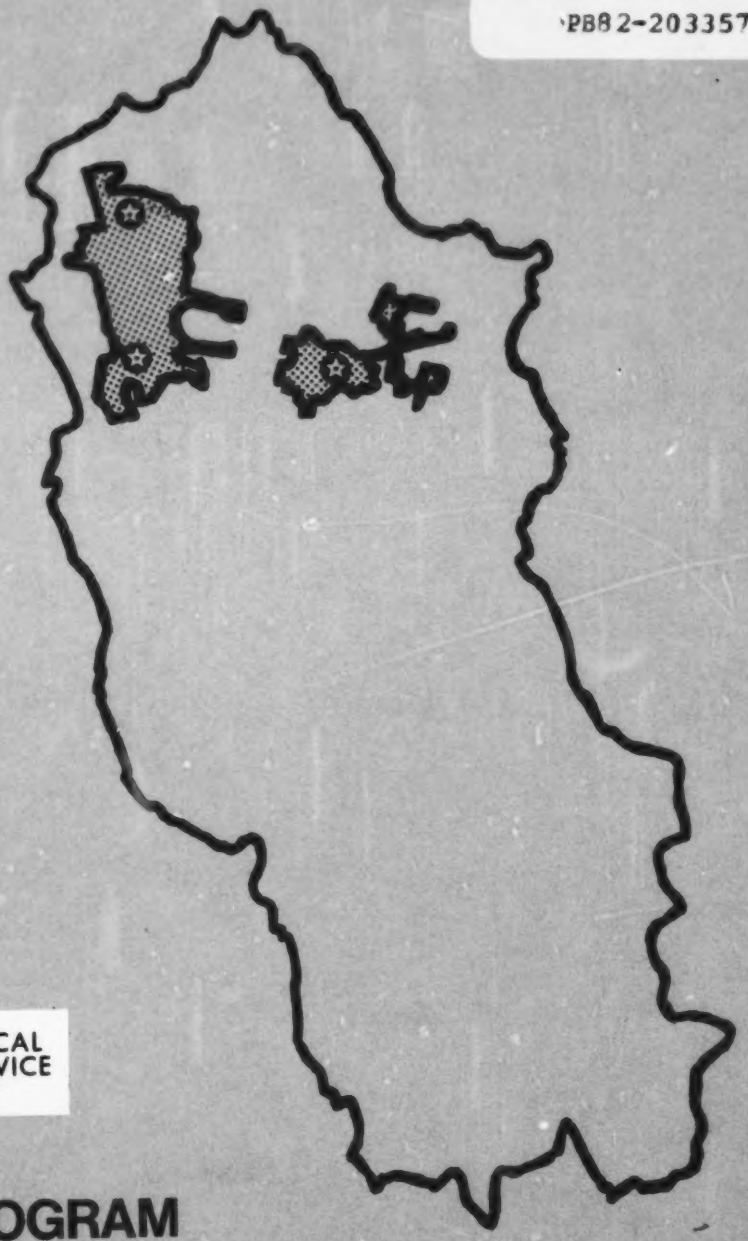
Environmental Protection Agency
San Francisco, CA

Aug 76

U.S. Department of Commerce
National Technical Information Service
NTIS

PB82-203357

FINAL ENVIRONMENTAL IMPACT STATEMENT SUMMARY



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LIVERMORE-AMADOR VALLEY WASTEWATER MANAGEMENT PROGRAM

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The purpose of this supplement is to provide an updated environmental impact assessment of the Liver-Amador Valley Water Management Agency's (LAVWMA) wastewater management program. The three specific objectives of the supplement are to (1) assess in more detail the primary impacts associated with the construction and operation of the proposed wastewater effluent export pipeline; (2) present the mitigation measures that have been adopted as resolutions by the members of LAVWMA and will be included as conditions to grant funding by the U.S. Environmental Protection Agency (EPA) and the State Water Resources Control Board (SWRCB); and (3) present an environmental impact assessment of additional wastewater management alternatives that LAVWMA had investigated subsequent to the publication of the Final Environmental Impact Statement (EIS) in August 1976.

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Environmental Impact Statement
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San Francisco Bay

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SUMMARY - FINAL

ENVIRONMENTAL IMPACT STATEMENT

PROPOSED WASTEWATER MANAGEMENT PROGRAM

LIVERMORE-AMADOR VALLEY, ALAMEDA COUNTY, CALIFORNIA

C-06-1031-010 SCH 740 715 05 AUGUST 1976

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

August 13, 1976

To All Interested Agencies, Public Groups, and Concerned Individuals:

The following Summary Final Environmental Impact Statement for the Livermore-Amador Valley Water Management Agency (LAVWMA) effluent disposal system is hereby submitted for your review and comment. This statement has been prepared in compliance with the National Environmental Policy Act of 1969 (Public Law 91-190), and implementing regulations by the Council on Environmental Quality and the Environmental Protection Agency.

I would like to call attention to the fact that in the process of summarizing the Final EIS, much of the detail necessary to explain and support the Summary's statements and conclusions was of necessity not presented. While the Summary is as clear and accurate as possible within this limitation, I would like to encourage those persons desiring a complete presentation of EPA's analysis, conclusions and recommendations to review the complete Final Environmental Impact Statement at the location cited below.

Comments should be sent to the office within thirty (30) days of the date of this letter. After 30 days and after review of any comments received, EPA may make a grant offer for design and construction of the proposed project.

The Final EIS and public hearing transcript may be reviewed at:

City of Livermore Planning Department
2250 First Street
Livermore, California 94550

Valley Community Services District
7051 Dublin Boulevard
Dublin, California 94566

Livermore Municipal Library
1000 South Livermore Avenue
Livermore, California 94550

City of Pleasanton Planning Department
200 Bernal Avenue
Pleasanton, California 94566

Alameda County Planning Department
399 Elmhurst Street
Hayward, California 94544

Dublin Public Library
6930 Village Parkway
Dublin, California 94566

Pleasanton Public Library
4333 Black Avenue
Pleasanton, California 94566

Freedom of Information Center
EPA, Room 329
401 "M" Street, S.W.
Washington, D.C. 20460

U.S. Environmental Protection Agency
Region IX Library
100 California Street
San Francisco, California 94111

Copies of the Draft EIS are available. Please advise EPA if a copy is required.

Please bring this notice to the attention of all persons who would be interested in this matter.

Sincerely,

Paul De Falco, Jr.
Regional Administrator

SUMMARY

THE EIS PROCESS TO DATE

The Draft EIS (DEIS) was published on November 25, 1975, following a period of preparation and review by LAVWMA and EPA officials. Preceding preparation of this DEIS, preliminary engineering design of proposed alternative system facilities was conducted. During preparation of this DEIS a public workshop and monthly Technical Advisory Committee (TAC) meetings were held. The public workshop was held on October 23, 1974, to receive comments and suggestions on alternative population projections for the Valley and alternative projects under consideration. The DEIS reflected comments received. A Technical Advisory Committee, which was composed of local, state, and federal agency representatives, met monthly throughout the development of the DEIS and, through their special expertise, provided comments and suggestions as the DEIS was prepared. The DEIS reflects these comments.

The principal task of the DEIS was to evaluate the alternative systems and recommend the most environmentally acceptable. It was also the task of the DEIS to explore and analyze the considerable potential for secondary air quality impacts in the Livermore-Amador Valley. All of this information was included in the DEIS and presented for public review and comment for 45 days following publication.

Following the public review period, a public hearing was held on January 13, 1976, to hear witnesses and receive written comments on the DEIS. At that hearing, the deadline for receipt of written comments was extended from January 15 to January 26, 1976. A summary of the public hearing follows.

Prior to and during the public review period, LAVWMA distributed a letter to affected agencies and organizations requesting their responses and commitments to proposed measures designed to mitigate the secondary impacts within the Livermore-Amador Valley. The response to the request, in terms of mitigation measures committed to, has been evaluated for significance to improved air quality.

This document is being prepared as a separate volume from the DEIS because there were no substantive issues or concerns raised which would have required substantial rewriting of the Draft volume.

All such concerns are addressed in this Final EIS and the two volumes together constitute the complete Final EIS. Copies of each will be distributed appropriately to concerned parties.

PUBLIC HEARING

The public hearing was held on January 13, 1976, at the Shannon Park Community Center in Dublin, California, for the purpose of hearing oral comments on the Draft Environmental Impact Statement for the Livermore-Amador Valley Wastewater Management Program. The hearing was conducted by officers of LAVWMA and EPA. Total public attendance at the hearing was estimated at approximately 75 persons, while 19 speakers made comments on the DEIS. Copies of the public hearing transcript are available for review at EPA and LAVWMA offices.

The hearing was introduced by the hearing officer and a statement made on behalf of LAVWMA as to its role and purpose in water management planning. The statement described LAVWMA's responsibility to resolve the Valley's wastewater discharge problems in close cooperation with the EPA and the State Water Resources Control Board under the guidance of the Federal Water Quality Act amendments of 1972.

EPA made a more extensive statement regarding its purpose in entering the project, and its chief concerns related to that purpose. EPA's primary purpose is the same as that of LAVWMA, to resolve the Valley's wastewater discharge problems that have been identified by past planning efforts such as groundwater degradation due to pathogenic bacteria, organic materials, and salinity. EPA has a secondary purpose in the LAVWMA project -- to preserve and protect the Valley environment from secondary impacts or the impacts of population growth and development.

The process in preparing the DEIS was described as proceeding from a preliminary engineering study to define the alternatives with review by several affected agencies at the State, Federal, and local levels. All of the comments from this review were incorporated into the DEIS prior to its publication. Early in the DEIS process, a public workshop was held regarding the issue of population projections and the most desirable wastewater management system alternative. The input developed from that workshop was also incorporated in the DEIS.

The selected project was described as having been derived from a series of 16 initial alternatives which were refined according to overriding concerns of economics and public health, to five viable alternatives for evaluation in the DEIS. Some of the principal reasons for favoring the selected project were also outlined, all described in extensive detail in the DEIS.

One of EPA's principal concerns with the selected project's primary impacts is that of the riparian vegetation in the Dublin Canyon. Of stronger concern to the EPA are the secondary or indirect impacts of the project which would occur in the Valley as a result of future population growth and development accommodated or caused by excessive sewage capacity.

EPA also described the process to be followed in preparation of this Final Environmental Impact Statement. LAVWMA will seek grant funding from the SWRCB and EPA for wastewater system capacity, related to a specific population level. EPA is then to determine if that level is acceptable from an

environmental standpoint after balancing the water quality improvements with the unmitigated impacts both primary and secondary.

Of the 19 persons who spoke at the hearing, the overwhelming majority (12) were concerned with future population levels and the impacts on Valley air quality. The consensus appears to be to serve the existing population with a relatively minor amount to be allowed for future growth. The second major area of concern is that of water quality including preservation of the Valley's water quality, the Niles Cone water quality and the San Francisco Bay waters. There appears to be considerable sympathy or desire to see more recycling or management of wastewaters. Other minor issues appear to be those against delaying implementation of the LAVWMA project, a questioning of LAVWMA's authority outside its existing service areas, the energy requirements of the LAVWMA project and some question as to whether the water quality or air quality standards are reasonable and fair.

In general, the project appears to be well received if it can be judged by the response at this public hearing. No one spoke against implementation of the project. The issues appear to be how large to build it and how much it will cost, both in terms of energy and financial resources.

One overriding concern was expressed in regard to reclamation and reuse of wastewaters. A discussion of this concern follows in the discussion of written comments and responses.

Two other points of concern will be dealt with similarly. Impacts of the LAVWMA effluent discharges on San Francisco Bay water quality were also raised as a concern. Cost of the project to local residents was a third concern raised at the hearing.

The majority of speakers concurred in and supported the DEIS findings, and thus require no response. A major dissenting position was presented by the Associated Building Industry of Northern California, which represents the residential construction and development community. In general, the statement conveyed that the selected project and DEIS were too restrictive on future development of the Valley. It was stated that the population projections, pipeline capacity, wastewater treatment standards, and proposed impact mitigating measures are so narrow and restrictive as to prohibit necessary housing construction in the Valley. An attempt was made to cast doubt upon the validity of E-0 population projections to estimate future sewage needs, and upon the accuracy and reliability of the air quality projection methods.

The basic position in response to these allegations is: Yes, the measures are restrictive. However, it would be senseless to fund sewage facilities of such a capacity that the accommodated population would generate secondary air quality levels detrimental to the health of that population. Sewage capacity can only be provided commensurate with sound air quality goals. To the extent that healthy air can be achieved, or at least not degraded, then economic development of the Valley should be permitted.

WRITTEN COMMENTS

In the process of the DEIS review, several organizations and individuals have responded in writting to the content and issues of the EIS and with regard to the selected project. This section is in

compliance with the EPA regulations for preparation of Environmental Impact Statements.* Section 6.210 states that Final EIS's shall respond to all substantive comments raised through review of the DEIS. Special care should be taken to respond fully to comments disagreeing with EPA's position. Section 6.304(g) states that Final EIS's shall summarize the comments and suggestions made by reviewing organizations and shall describe the disposition of issues raised. In particular, the EIS shall address the major issues raised when the EPA position differs from most recommendations and explain the factors of overriding importance overruling the adoption of suggestions.

The most substantial issues raised can be grouped into three general areas. It was interesting to learn that a large body of commentators favored more reclamation and reuse of wastewaters than the selected project appears to provide for. The motivation for these comments centers around the better utilization of available resources including finances, energy, and the water itself, which would be recycled. This strong response in favor of wastewater reclamation and reuse is in contrast to many past projects which have drawn strong criticism toward the recycling of wastewaters. The reading of this type of response is that the public is becoming more aware of environmental constraints and the costs, both in terms of finances and the environment, which are involved with mismanagement of resources.

The growth versus no-growth issue was well represented in the comments as might have been expected in the Livermore-Amador Valley. The majority of commentators appear to favor slower, more balanced growth in order to improve and protect the Valley's air quality. There were a substantial number of comments concerned with the impacts of the no-growth philosophy on the economy, the provision of jobs for Valley residents and the satisfaction of housing needs, and the Valley's role in satisfying a portion of the region's housing market.

There appears to be very little opposition to the project itself. The problem of water quality degradation in Niles Cone is well recognized and the willingness to expend some effort to remedy that problem exists. The general nature of the comments regarding the selected project was for greater reclamation and reuse of wastewaters, or for specific alternatives which were not selected but which appeared to the commentators to have more potential for reclamation and reuse.

RESPONSE TO COMMENTS

Numerous commentators were concerned that reclamation and reuse of wastewaters were not sufficiently exploited by the project. Others recognized that the project will make limited use, but were concerned that restrictions stemming from water quality and health concerns were too severe and perhaps arbitrary. Current practices of spray irrigation on pastures and golf courses will be continued, and further opportunities for safe, local disposal will be sought. The LAVWMA project is so designed that the pipelines may be tapped at minimal cost to provide treated effluent for any such opportunity identified. All local disposal will be subject to groundwater monitoring to detect actual and potential groundwater degradation. The restrictions on reclamation/reuse are the result of health concerns expressed by California State Department of Health officials. There are presently too many unknowns

*Federal Register, Volume 40, No. 72, Part 3, April 14, 1975. Appendix A of the DEIS.

regarding the levels at which long-term health effects of stable organic compounds and nitrates are exerted. A program of research has been initiated to establish related criteria for reclamation/reuse of wastewaters. Until those standards are developed, limited reclamation and reuse will be permitted under carefully controlled conditions for the LAVWMA project and others throughout the state. There are other local pressures for preservation of groundwater quality and restriction of reclamation and reuse expressed by the Alameda County Water District and Zone 7 of the ACFCWCD.

Demineralization of both effluent and water supply is a related concern. Effluent treatment does not remove the organics and nitrates discussed above. A pipeline is still required for export of the brine product to acceptable receiving waters, such as San Francisco Bay. Water supply treatment does not meet waste discharge requirements for salt content (TDS) because one use-cycle raises salt content above the discharge requirement standard. Furthermore, the federal and state funds for sewage treatment facilities are not applicable to water supply problems.

The second major concern expressed was that of air quality. The Valley has some of the Bay Area's worst and holds strong potential for further degradation due to increased population and vehicular travel. Methods of estimating future air quality and proposed methods of reducing vehicular travel to mitigate against degraded air quality drew specific comment. The most general comment on this topic questions the rationale of relating air pollution and a charge to clean up water pollution. This relationship was developed in considerable detail in the discussion of secondary impacts (DEIS, Section 4). Lack of sewage capacity and subsequent potential water quality problems are already a constraint on Valley growth. It follows that provision of sewage disposal capacity will allow more growth to occur, given that there are no more severe constraints. Transportation access and developable land, the prime causes of Valley growth, do not presently, nor in the future, constrain growth; nor will the water supply. The constraining factor to healthy, desirable living in the Valley is air quality. More growth, allowed by increased sewage disposal capacity, will further degrade the Valley's already unhealthy air. This should be a severe constraint on Valley growth.

A reasonable approach to this problem has been established by EPA to allow reasonable growth, accompanied by commitments of local governments to measures to reduce projected vehicular travel. Thus, a goal of economic growth and provision for future land-use requirements can be balanced against environmental quality.

Concerns were also expressed about the nature of the Valley air quality problem and methods used to analyze it. The phenomenon whereby pollutants generated in the central Bay Area are "transported" to the Valley is not well quantified by available methods. Its relative contribution to the problem is both highly variable, depending upon weather conditions, and hotly disputed, according to one's interests. A potentially successful method of analysis has recently become operational on a large computer of the BAAPCD and Lawrence Laboratories, but will not be fully workable until 6 to 12 months hence. The fact remains that Valley air quality is far more sensitive to additional local sources than to the possible range of variation of the transported pollutants.

A specific complaint was in reference to the limited data base, and the seeming range of

variability in air quality projections. The range is due to the use of an "average" year and "bad" year to indicate the influence of weather conditions, as much as 100 percent variability. The limited data base -- 1970 to 1974 -- is inescapable because that is the longest, most consistent set available. Another set of data from another Valley monitoring station location is available for 1967 through 1969. In the period 1967 to 1974, the three years -- 1968, 1969, and 1974 -- would be labeled "bad" air quality years.

Employment of vehicle miles traveled (VMT) as the basis for mobile source emissions forecasts was questioned as well as the method to estimate VMT. Proposed methods to reduce VMT also generated comment. A position was taken to focus on VMT as the principal indicator of mobile source emissions because vehicle emissions controls have already been achieved and will not alone be sufficient to meet air quality standards. Technological controls have been applied to the maximum feasible extent. "Cold starts" could have been employed in addition to VMT, but the principal Valley travel characteristic is excessive trip length due to remoteness from established centers and services. "Cold starts" -- running of a cold, choked engine -- are related to the number of trips.

A simple method of estimating VMT was employed to avoid confusing the basic relationships. Present travel patterns were simply projected with future land-use patterns as an indication of what will occur if present patterns continue. All of the possible factors which could have been included in the forecast to reduce projected VMT are identified as potential mitigation measures. The reduction potential of committed measures is evaluated further on.

The basic question behind the air quality issue of "growth versus no-growth" was raised in several specific comments. It was charged that the DEIS did not demonstrate that the size of export facilities would encourage population growth. The relationship was discussed several paragraphs earlier but perhaps bears repeating in this context. Transportation access and relatively inexpensive land are the cause for Valley development and will thus encourage growth. Sewage capacity is presently the most severe growth constraint (with legal standing), and an expansion of capacity will allow growth to occur from pent-up forces.

It was charged that the 20-year planning period is too short and population projections too low and unreliable. The period conforms to that required by SWRCB planning guidelines for administration of Public Law 92-500 "Clean Water" grant funds. It is unimportant whether the population projection accounts for all developable Valley land and a share of the regional housing needs. It represents a projection for reasonable growth, within the range of existing constraints on Valley growth, upon which environmental impacts can be analyzed. There seems to be little point in projecting higher populations when air quality at minimal and moderate growth will already be detrimental to health.

Some concern was demonstrated for the impact of "no-growth" in the LAVWMA area upon growth elsewhere. Undoubtedly, the existing pressure for housing would be shifted elsewhere. It is also true that there are areas within the region which would accommodate that growth with less generation of travel and less detrimental effect on air quality. These are reasonable concerns for regional planning policy.

THE PROJECT

EXPORT TO EBDA INTERCEPTOR

LAVWMA DECISION

The System

The LAVWMA Board of Directors has affirmed its selection of June 10, 1975, to implement the wastewater management system which will export the Valley's sewage effluent to the East Bay Discharger's Interceptor for final discharge to San Francisco Bay. Concurrence by the Environmental Protection Agency in selection of this system was communicated in a letter of February 26, 1976, to BASSA. EPA's concurrence was given upon noting that no substantive comments had been received in objection to the recommended alternative during public review of the DEIS. Concurrence of the SWRCB has not been formally received, but the Agency's comments contained in the State Resources Agency review of the DEIS expressed no contrary view. The State Department of Fish and Game statement is taken at this time as a preference for Alternative 1E from their viewpoint, and not as the official State of California selection.

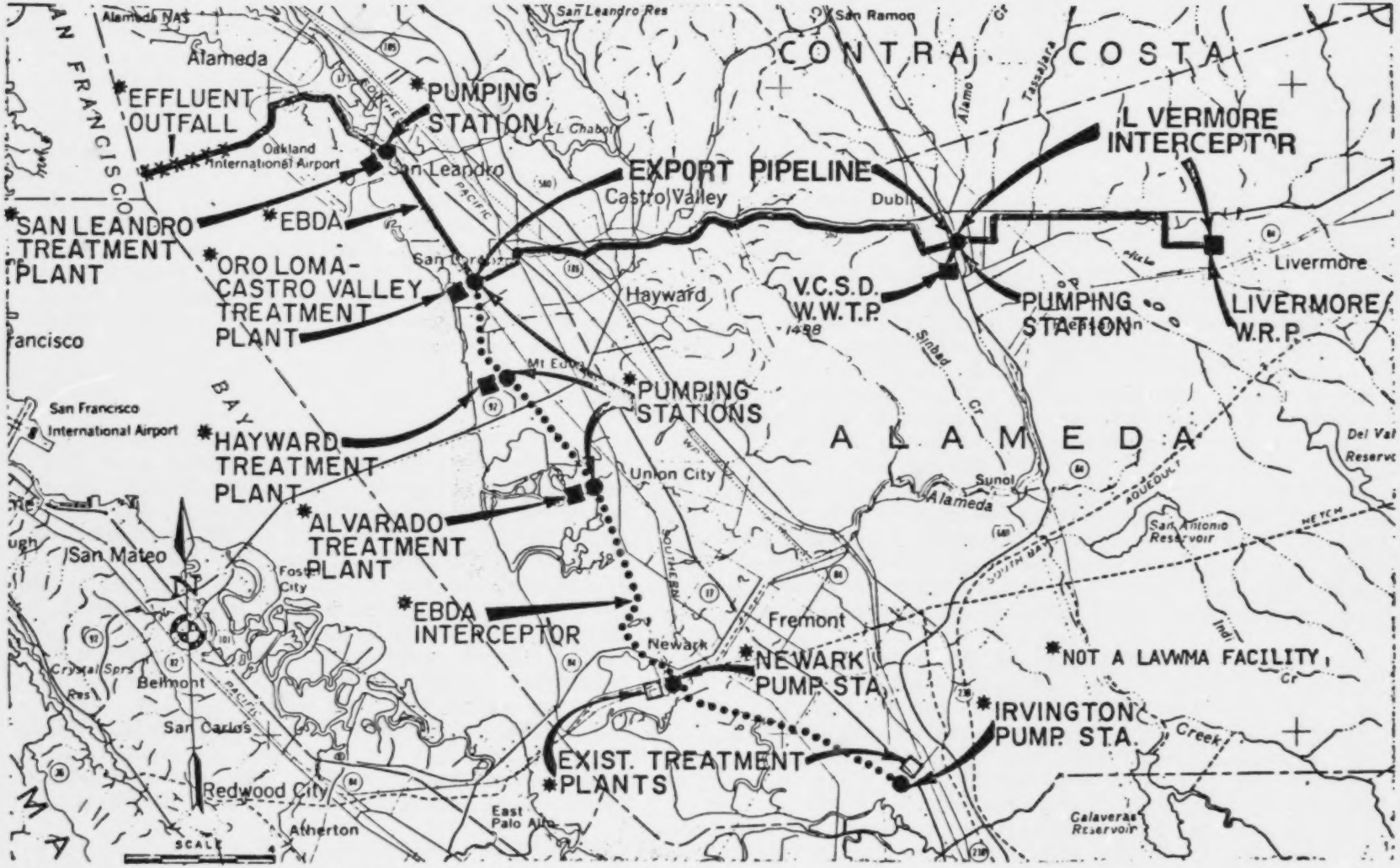
The physical components of the system are illustrated in Figure 1. The basic components are the Livermore Interceptor Pipeline and the Export Pipeline. This system assumes expansion and continued treatment at Livermore and VCSD, with eventual consolidation of all Pleasanton flows to VCSD. Appurtenant structures to the pipeline will include a pair of storage reservoirs adjacent to the VCSD plant and the pumping station required to lift the effluent to Boehmer Summit in Dublin Canyon (I-580 route). The storage reservoir will be operated both as a flow-equalization facility and an emergency disposal site in the event of minor power and equipment failures. Total capacity of the reservoirs will be on the order of 12 hours pipeline flow capacity (8 to 10 million gallons). Inclusion of this flow-equalization capacity allows a cost savings in pipe size as it will not then require capacity for peak flows. The reservoirs are paired in order to maintain system operating capability on one, simultaneous with draining and cleaning the other. The Livermore Interceptor and the Export Pipeline from Boehmer Summit to the Oro Loma Plant will operate on gravity flow. The hydraulic head created by pumping the effluent to Boehmer Summit and its subsequent flow down the west gradient will be utilized to reduce EBDA pumping requirements.

System Capacity

The LAVWMA Board of Directors will seek State and Federal funding for a system capacity of 19.72 million gallons per day (MGD). Total 1998 capacity requirements for Livermore, Pleasanton, and VCSD are 8.50 MGD, 7.09 MGD, and 4.13 MGD, respectively. The total for LAVWMA would be 19.72 MGD. Future residential and commercial capacity is based on the E-0 population projection which will accommodate modest Valley growth on the order of 2 percent annually. Other capacity (4.10 MGD) is reserved for industrial growth, and 0.91 MGD for conversion of existing septic tanks and private systems. The E-0 population projections call for 65,239, 47,056, and 38,663 persons for Livermore, Pleasanton, and VCSD, respectively, in 1998. The projected LAVWMA service area population would total 150,958.

COORDINATION WITH EBDA PROJECT

LAVWMA is currently working with EBDA to assure compatibility of the projects, and coordination of



SOURCE: John Carollo Engineers

Figure 1. SELECTED PROJECT - EXPORT TO EAST BAY INTERCEPTOR - ALTERNATIVE 1B.

schedules. One of the initial steps was the conduct of a study to determine the impacts on the EBDA project design and costs,* and on San Francisco Bay water quality. That study has also recommended alternate institutional arrangements to accommodate LAVWMA. The cost-sharing basis has yet to be agreed upon. LAVWMA has authorized its engineering consultant, John Carollo Engineers, to look further into other cost-sharing arrangements.

BENEFICIAL IMPACTS

Principal beneficial impacts will derive from cessation of discharges to Alameda Creek. The potential problem of groundwater degradation from wastewater discharges will no longer exist. Valley groundwaters and Niles Cone groundwaters will be protected from their major potential source of pollution for at least 20 years.

Other benefits will accrue from consolidation of three separate discharge facilities to one located in San Francisco Bay which is more able to assimilate the wastes. Discharges, as they are currently managed, flow down the Valley arroyos into Niles Creek, crossing numerous areas sensitive to groundwater degradation. It will now be possible to selectively discharge to the least sensitive sites if so desired and monitor fewer sites. Consolidation of facilities also brings benefits through economies of scale both in construction and operation, from which several trade-offs to improved design and management can be made.

- The discharge route has been extended to less environmentally sensitive receiving waters.
- Plant staffing can be more complete, improving reliability and treatment.

Opportunity to reclaim and reuse the wastewaters is another beneficial aspect which this system accommodates. Both the Interceptor and Export lines may be tapped at any convenient point to allow land application of the effluent to golf courses, campuses, freeway medians, and agricultural lands. Properly managed, this type of activity represents a great opportunity to recharge groundwaters without degradation. Monitoring would have to be conducted to assure that no short-term degradation would occur or that no critical long-term buildup of harmful constituents would occur.

A possible beneficial effect of the proposed pipeline will involve the reservation of the corridor for nonstructural uses. In light of the continuing residential expansion within this area of the Valley, the pipeline right-of-way will remain relatively undeveloped and available for supporting some wildlife. Alternatively, it could be developed into a light-duty transportation corridor for pedestrians, bicycles, or equestrians.

Beneficial economic impacts will also accrue from the pipeline. Construction expenditures of approximately 2 million dollars will create a temporary demand for 37 man-years of employment and comparable demind for materials and equipment. As far as the Interceptor represents a commitment to complete the entire project, it also represents a long-term economic benefit. Solution of the Valley's sewer problem will allow healthy land development and economic growth to occur. The need for such growth is evident in the current pattern of unbalanced employment opportunities and the excessive commute travel it generates. Growth should not

*LAVWMA-EBDA Joint Use Outfall Study, Jenks & Adamson, Kennedy Engineers, Inc., January 1976.

occur exclusively in the residential sector, however, as the commute pattern, "bedroom" community aspect of the Valley would be exacerbated, with all the attendant ills of increased air pollution and heavy residential tax burden.

ADVERSE PRIMARY IMPACTS

Introduction

The following discussion of adverse primary impacts, mitigation, and unavoidable impacts pertains only to the Livermore Interceptor Pipeline, that portion of the system between Livermore and VCSD. Preliminary right-of-way engineering has been completed only for that portion. When the remaining right-of-way for the Export Pipeline from VCSD to the Oro Loma Pump Station has been precisely determined, an addendum to this Final EIS will be issued. Engineering and primary impacts assessment will occur by Fall 1976.

Interceptor construction and operation will have an effect on energy and mineral resources. These general concerns were addressed in the DEIS for a range of pipeline sizes which have not been materially altered at this time. Such concerns will not be further addressed here. For the most part, impacts will occur in the construction stage. The only foreseeable impact of the pipeline's operation on its immediate vicinity is the loss of flow to the local waterways, Arroyo Las Positas and Arroyo Mocho. It is not known what portion of the average flows this quantity represents. It could conceivably reduce vegetative growth and wildlife habitat in the channels. Significance of this impact is reduced by the regular mowing of this growth to reduce fire hazard.

There are specific historical/archaeological, geological, biological, and human resources concerns associated with construction of the Livermore Interceptor Pipeline. Sensitive sites indicated in Figures 2 and 3 are referenced in text by site numbers in parentheses, e.g., (Site 1).

Historical/Archaeological Resources

Field reconnaissance indicates no archaeological surface remains in the general area of the Livermore Interceptor. However, buried archaeological remains could be discovered in the reach paralleling the Livermore Airport (Site 1)* when trenching commences.

Geological Resources

According to the soil investigation for the proposed Livermore Interceptor,** the geologic conditions along the pipeline route, while presenting some limitations, do not present any serious problems that cannot be mitigated by established engineering procedures. Potential problems include fault displacement (Sites 2 and 3), trench wall instability (Site 4), erosion and siltation (Sites 5-9), hydrostatic uplift (Sites 5-9), settlement (Sites 10-13), importation of fill material, and disposal of spoils.

Biological Resources

The wildlife and vegetative resources of the proposed Livermore Interceptor are meager and generally reflect the disturbance of the agricultural

*Figures 2 and 3.

**Harding-Lawson Associates, March 26, 1976. Soil Investigation, Proposed Livermore Interceptor, Alameda County, California.

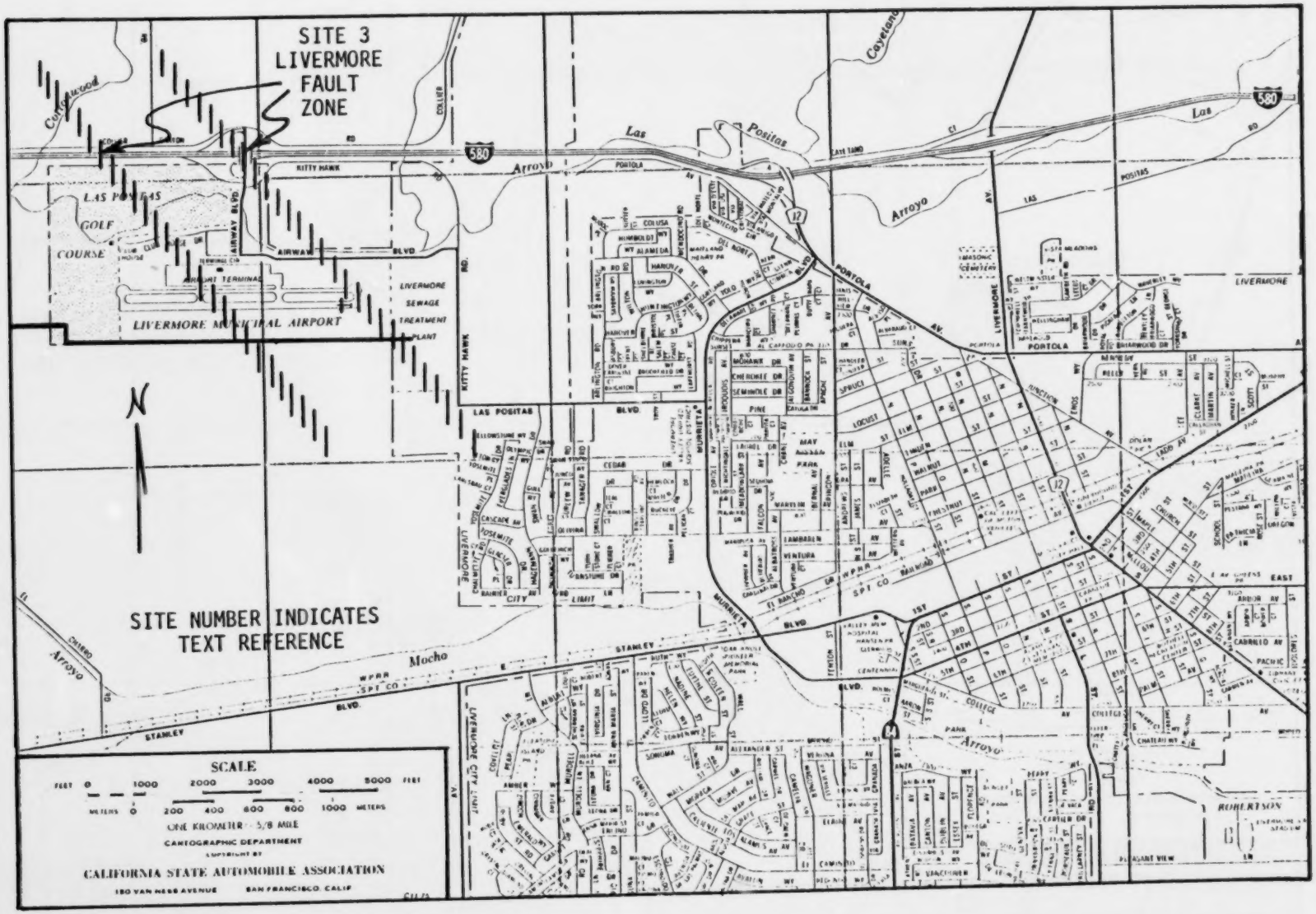


Figure 2A - LIVERMORE INTERCEPTOR, NATURAL HAZARDS AND IMPACTS

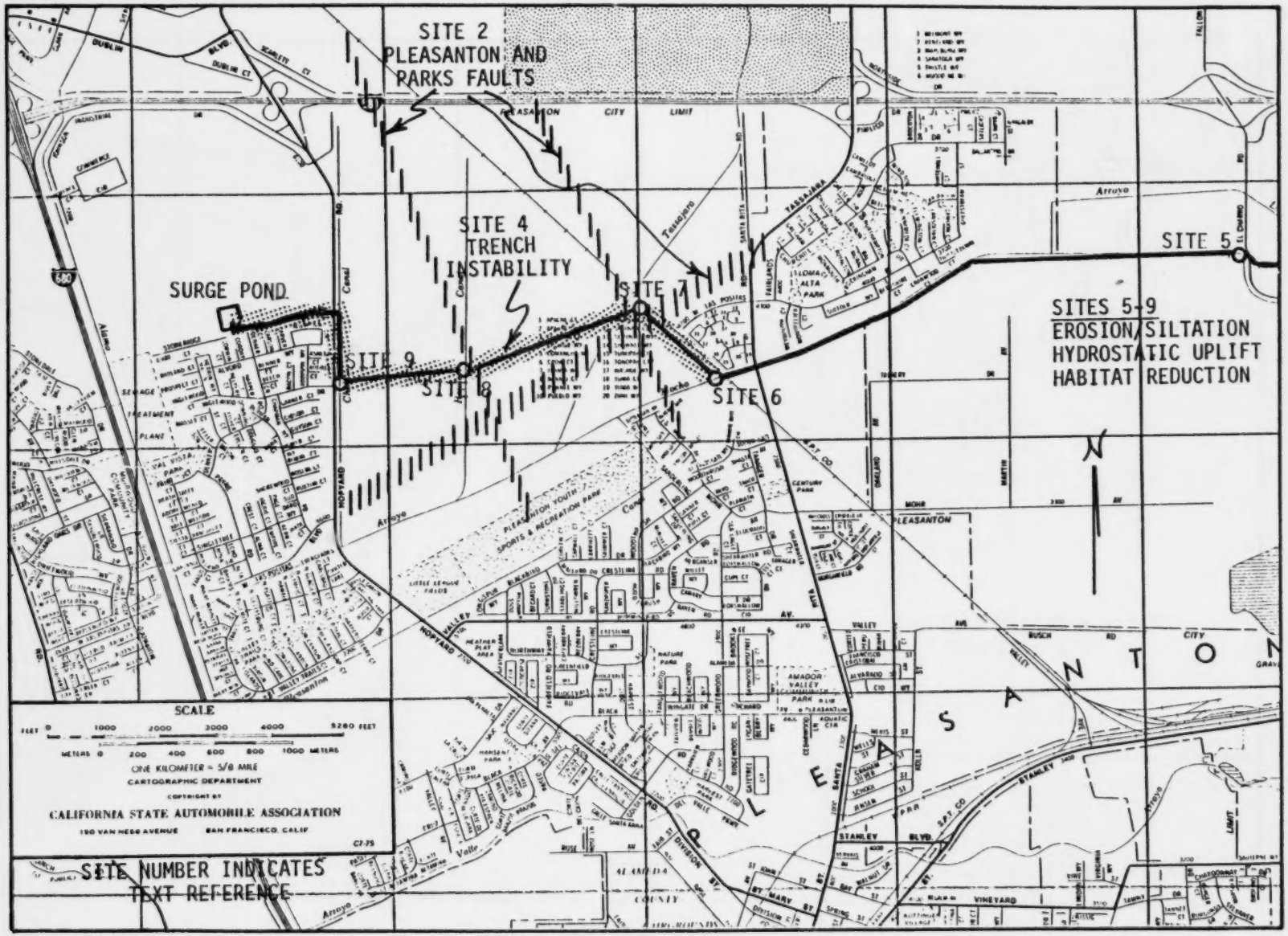
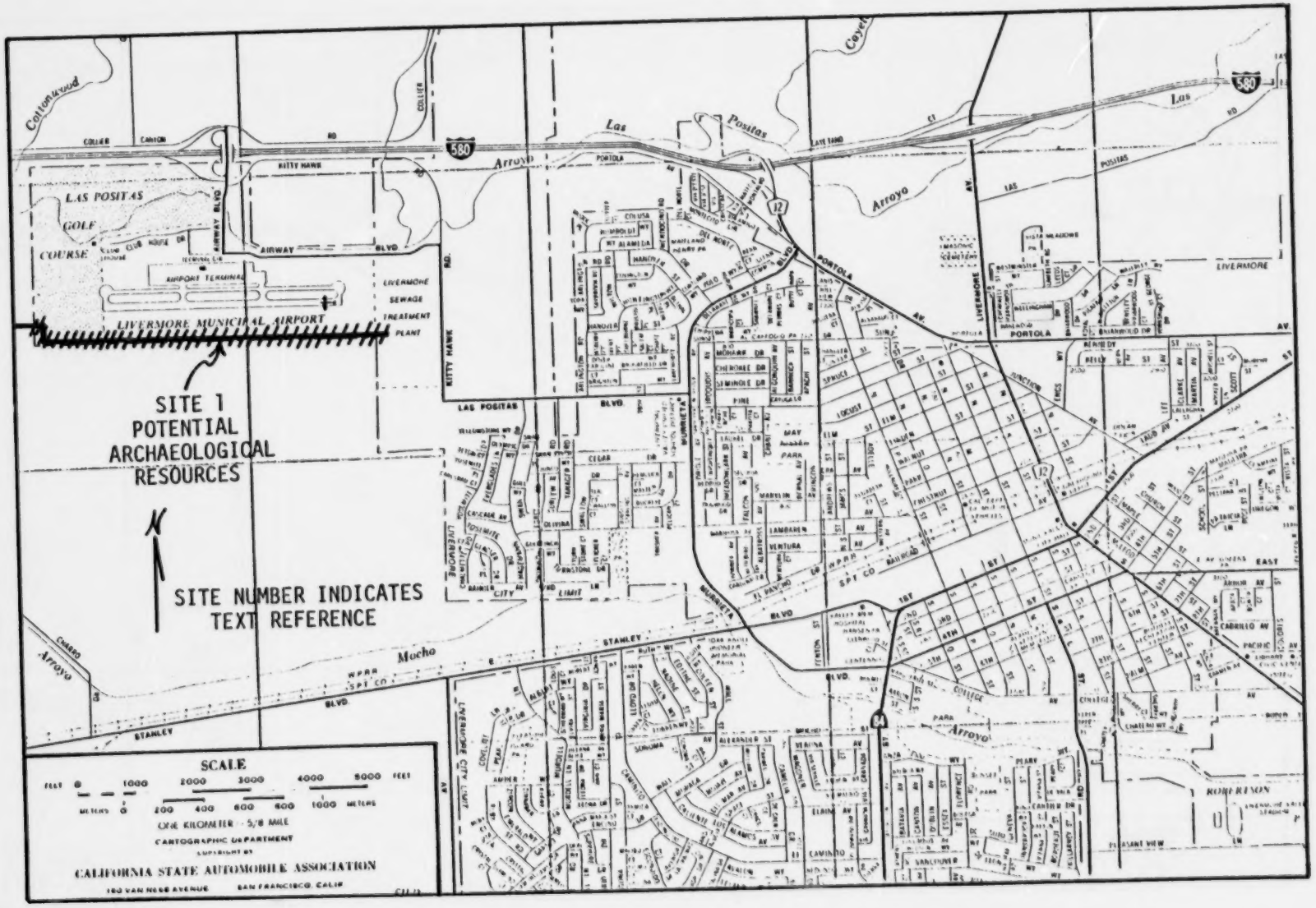


Figure 2B - LIVERMORE INTERCEPTOR, NATURAL HAZARDS AND IMPACTS


SITE 1
POTENTIAL
ARCHAEOLOGICAL
RESOURCES
SITE NUMBER INDICATES
TEXT REFERENCE
LIVERMORE MUNICIPAL AIRPORT
LAS POSITAS
GOLF
COURSE
AIRPORT TERMINAL
LIVERMORE
SEWAGE
TREATMENT
PLANT
AIRWAY BLVD
KITTY HAWK RD.
COLLIER CANYON RD
Cottonwood
Arroyo
Las Positas
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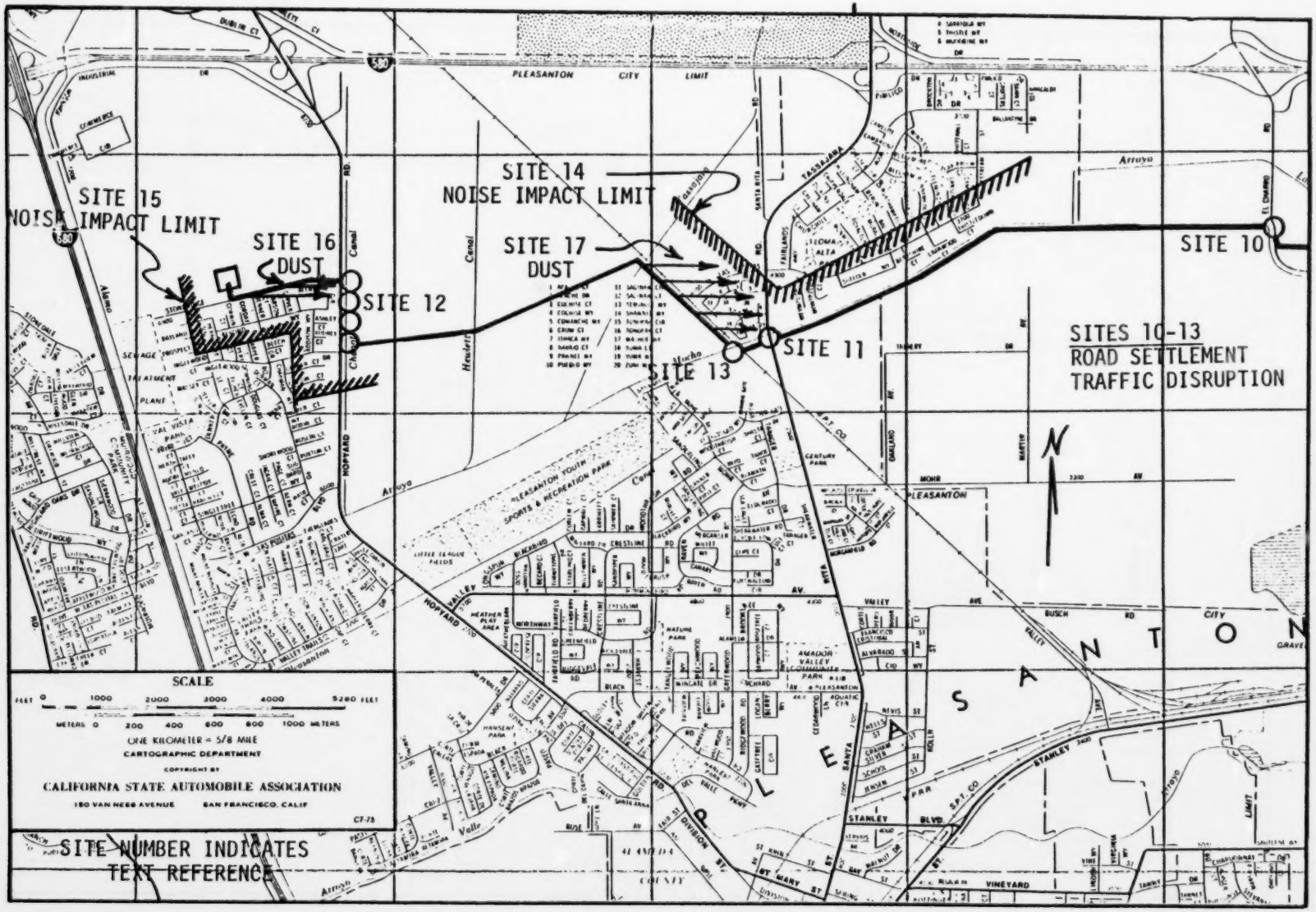

Figure 3B - LIVERMORE INTERCEPTOR, CULTURAL IMPACTS

land uses along its route. However, some significant wildlife and wetland vegetation still remains in the vicinity of Arroyo Mocho. The waterway crossings (Sites 5-9) will destroy a small portion of the marsh plants which occupy the channel.

The only significant adverse effect which the proposed construction and operation of the Export Pipeline will have on wildlife and vegetation within the route, centers on the removal and disturbance of the marsh vegetation and wildlife at the channel crossings. The probable area of effect will involve only about 1,000 square feet of marsh plants and channel at each site. Most wildlife will be affected by disturbance and will leave the immediate vicinity during construction. The wildlife support of the marsh habitat will be destroyed until marsh plants and invertebrates can reestablish themselves (1 to 3 years).

Construction elsewhere along the route will generally destroy cultivated crops or the oldfield vegetation along the railroad right-of-way. These areas will return to their existing vegetation within 1 to 2 years.

Human Resources

Potential concerns for human resources are: dwelling and structural displacement; traffic disruption (Sites 10-13); noise (Sites 14 and 15); and dust nuisance (Sites 16 and 17). There will be no displacement of structures for the Interceptor Pipeline. Sufficient open land, easements, and rights-of-way exist to avoid encroachment upon improved lands.

MITIGATION OF PRIMARY IMPACTS

Mitigation of all of the identified hazards and impacts to an acceptable level is possible. Subject to final design considerations, the measures identified below will be incorporated as grant conditions, and will be written into construction plans and specifications.

Historical/Archaeological Resources

While the normal procedure is to notify a qualified archaeologist when remains are unearthed, it is recommended in addition that an archaeologist be called in to make spot checks of the trenching activities as they occur in the area along the airstrip. Costs necessitated by the archaeologist's presence and any ensuing work required are grant-fundable.

Geological Resources

Several means are available for minimizing geological hazards and impacts. Most of these are recognized as standard methods of proper engineering design and construction procedure.

- Provision of pipe flexibility and valves near fault zones to minimize rupture damage.
- Provision of qualified personnel to recognize hazards and implement proper design and procedure.
- Shoring and sloping of trench walls for stability.

- Minimize erosion by dry season construction and revegetation.
- Preparation of erosion control contingency plans for wet weather.
- Trench dewatering to prevent piping and sand boils.
- Pipe tie-down or cover to prevent hydrostatic uplift.
- Backfill material selection and compaction to prevent settlement.
- Handling of excavated materials, stockpiles, and backfill to minimize erosion, sediment runoff, and loss of valuable topsoils.

All such measures are subject to final design considerations and field conditions.

Biological Resources

Mitigation of temporary vegetative loss at the channel crossings would not be necessary in the interest of habitat preservation as Zone 7 mows all bottom growth about every 2 years in the course of normal channel maintenance for fire hazard reduction. Preservation of the plant root structures is critical, however, to minimize erosion of the channel banks. It is recommended that the marsh plants be removed, protected and replaced following construction.

Human Resources

Traffic disruption due to total road closure will be avoided in all cases. At El Charro and Santa Rita Roads (Sites 10 and 11) the technique of excavating half the road width at one time and shuttling traffic through the open lane will be utilized. Crossing of the Southern Pacific Railroad track right-of-way (Site 13) will be accomplished by horizontal boring. At Hopyard Road (Site 12) it is recommended that public notice of the lane closure be made in the local newspapers and a sign posted at the location in advance of construction. Local agency requirements for construction in roadways have not yet been determined, but will be complied with in the engineering design and preparation of construction documents.

Noise disruption can best be mitigated by good construction practice:

- Recognition of the sensitive areas (Sites 14 and 15)
- Avoidance of excessively noisy equipment (2-cycle diesel engines)
- Shutting down of idling equipment
- Limitation of work to normal working hours
- Equipping and maintaining all vehicle and equipment engine mufflers
- Use of extra, temporary engine mufflers in the vicinity of residential development (Sites 14 and 15)

Dust generation can best be avoided and mitigated by:

- Planning of operations to minimize vehicle movements
- Watering of work areas and access roads to settle dust
- Sensitive areas (Sites 16 and 17) should receive particular care such as ceasing construction on particularly windy days, and absolute avoidance of Site 17 in particular for access to adjoining legs of the route

UNAVOIDABLE PRIMARY IMPACTS

No impacts, either in the construction or operation stage of the Livermore Interceptor Pipeline, are expected to occur which cannot be mitigated to an acceptable level. Final engineering design considerations and field conditions will determine the best applicable methods in some cases.

SECONDARY IMPACTS

INTRODUCTION

Potential for severe air quality impacts in the Livermore-Amador Valley is high. Excessive land consumption of sprawled development could have serious secondary impacts on environmentally sensitive areas. To the degree that local land-use policy implementation is sensitive, the potential impacts will be largely mitigated.

BENEFICIAL IMPACTS

Provision of wastewater export capacity will relieve an existing constraint on Valley land and economic development. Since 1973, waste discharge limitations have nearly halted the earlier rate of rapid expansion. To the extent that future development is directed to correcting the present imbalance between resident Valley population and local economic/employment opportunity, beneficial impacts will occur in relieving the excessive commute travel pattern, and consequently improve the projected air quality.

ADVERSE SECONDARY IMPACTS

Introduction

Adverse secondary impacts identified in the DEIS are related to either excessive vehicular travel or excessive land consumption. Vehicular air pollutant emissions are presently the greatest contributor to poor Valley air quality. Excessive land consumption due to sprawled land development patterns has created serious impacts from geologic hazards and on resources of prime agricultural lands, and the semi-rural Valley atmosphere which provides a unique experience to Valley residents and visitors.

Air Quality

Projected air quality fails to meet the National Ambient Air Quality Standards (NAAQS) even at the E-0 growth rate. Figure 4 indicates that in the year 2000 the NAAQS will be exceeded on a range of 9 to 17 days per year, without implementation of travel

mitigation measures. The principal cause of deteriorated air quality would be the 42-percent rise in daily vehicle miles traveled (VMT) from the present estimated 1.72 million in 1974 to 2.45 million daily in 2000.

Revisions to Oxidant Calibration. Since the completion of the LAVWMA DEIS, the California Air Resources Board (ARB) has instructed all Air Pollution Control Districts within the state to adopt a calibration procedure for oxidant measuring instruments which effectively lowers measured concentrations of oxidants by approximately 20 percent. The DEIS air quality analysis was based on historical oxidant concentrations. Therefore, a 20-percent reduction in historical data would reduce maximum annual estimated oxidant concentrations by 20 percent, and reduce the estimated number of days the standard is exceeded by more than half. URS, however, believes that the original estimates are a more reasonable representation than estimates reduced by 20 percent. Certain assumptions incorporated in the original estimate, regarding emission controls and the process of photochemical smog formation, have proven since that time to lead to overly optimistic estimates. It is felt that the original projections still give a realistic estimate despite the 20-percent reduction in historic oxidant levels. Figure 1 has been adjusted for the historical record (1974), but the future estimates remain as before.

Land Consumption

Land absorption rates applied to the estimated number of jobs and population accommodated by the proposed project indicate roughly 20,000 acres would be developed or urbanized in 1998. Compared to existing development, this indicates that some 5,000 acres of completely undeveloped lands will be urbanized by growth which the proposed project accommodates. There will be no severe impacts of accommodated growth and land consumption. There will only be a subtle erosion of the quality of life from the decline of agricultural activity, loss of recreation opportunity, and the conversion of spacious open lands and vistas to the typical suburban sprawl of asphalt, lawns, and fences.

MITIGATION OF SECONDARY IMPACTS

As a condition of receiving grant funds, LAVWMA was requested by EPA to secure commitments to measures proposed to mitigate secondary impacts on air quality and land consumption. Principally, EPA is concerned with the secondary air quality impacts as mandated by the Clean Air Act of 1970. Measures applying to the reduction of vehicular travel have received the greatest attention, consequently. However, it is recognized that those travel mitigation measures identified in the following evaluation as "Land-Use Measures" are inherently applicable to the problem of excessive land consumption.

Committed Mitigation Measures

As a part of its funding decision, EPA will consider the significance of commitments to reduce VMT for the benefit of air quality. A significant mitigation measure is represented by LAVWMA's commitment of future sewage capacity to industrial growth. The intent is to create more Valley jobs for Valley residents to reduce the prevalent commute pattern. Commuting is a significant source of the VMT which contributes to the Valley's air quality problem.

Responses to LAVWMA's request for commitments to mitigation measures have been strongest from the cities of Livermore and Pleasanton. VCSD's response

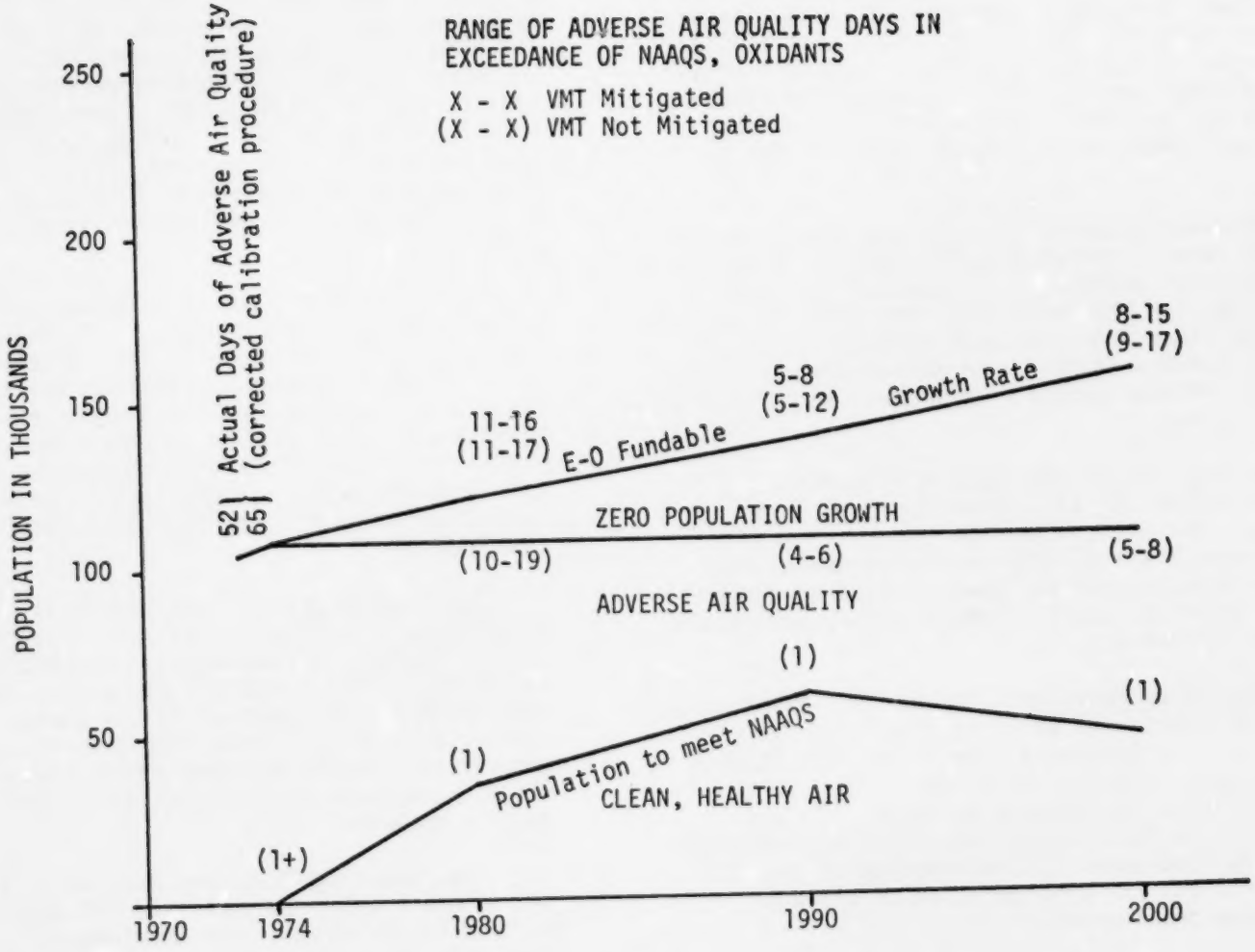

Figure 4. ESTIMATED FUTURE AIR QUALITY OF THE LIVERMORE-AMADOR VALLEY

was extremely conservative even respecting the fact that the District's authority is limited. Alameda County is able to report existing practice of several measures, and expressed a commitment to study transit and parking needs for the Valley. MTC, with considerable authority in regional planning, responded minimally. Employers who did respond showed considerable support for car-pooling programs with supplemental measures, and provision of bicycle racks at employment sites.

Two dominant patterns evolved from the responses. Car-pooling received broad support, both as an existing and potential practice. Car-pooling has significant potential for VMT reduction. The other significant pattern stems from the broad response of Livermore and Pleasanton to the proposed measures. These two patterns will be evaluated for their significance to VMT mitigation.

Car-pooling is the one measure with potential to maintain future VMT at current levels. It is also probably the least expensive and most rapidly effective measure which could be implemented. Practically however, success has been limited; largely due to the voluntary basis of the program, and partly due to real constraints.

Transportation Measures. The cities' and Alameda County's commitments and existing practices lie in several areas; (1) improving transit service through better passenger/transit connections, (2) provision of auto-free zones for pedestrian malls, (3) provision of bicycle facilities, (4) attraction of local job producing land uses, (5) maintenance of compact urban centers, and (6) consideration of air quality in future land development.

Evaluation of the transportation system related measures (1), (2) and (3), is based on the potential market for each measure, and predicating the likely market response. It is evident that good access to park-and-ride lots and well coordinated schedules, combined with the soon-to-be-completed, high-occupancy-vehicle-lanes on I-580, will provide transit service from the Valley to BARTD service points equivalent in time and cost to personal auto travel. Studies have shown that 60 to 70 percent of trips will be diverted to transit when auto and transit travel times are equal.

The other two areas of commitment with respect to the transportation system -- (2) auto-free zones, (3) bicycle facilities -- are relatively minor in terms of VMT reduction and overall Valley air quality. Both measures are more effective in reducing local travel, and thus in reducing localized emissions in business districts and residential areas. Both measures are also important in reducing auto dependency which will be important for the long-term effect.

Land-Use Measures. The remaining identified commitments and practices (4), (5) and (6) are related to land use practices. Attraction of local job producing land uses (4) is related to the cities' and LAVWMA's commitment of future sewage capacity to industrial uses, and the attraction of appropriate industries. Sufficient industrial sewage capacity has been reserved to mitigate the entire excessive commute problem.

The remaining land use measures -- (5) to maintain compact urban centers, and (6) consideration of air quality in future land development -- will reduce VMT. More rational, compact centers, providing a full range of services, will reduce the need for

travel, allowing more to be accomplished with each trip and reducing the number of trips required. At the same time, trips will be shorter, and while emanating from denser land uses, will be more amenable to mass transit, cycling and walking.

Combined Effectiveness. The potential and probable effect of the individual measures is indicated in Table 1. Implementation of all the committed measures will not produce, as a total effect, the sum of their individually estimated effects. There are competitive relationships and synergistic effects which must be accounted for. Basically, car-pooling, transit system improvements, and provision of local jobs are competing for the same class of travel -- the commute trip. Car-pooling and transit measures are competitive in the short-term time scale, too; whereas provision of local jobs is a medium-to-long-term effective measure. The committed land use measures, on the other hand, will have a synergistic (greater than the sum of the individual parts) effect with any of the car-pooling and transit measures. More compact land use patterns shorten the distances which car-poolers and transit passengers must travel to assemble a passenger load.

TABLE 1
Significance of Mitigation Commitments

Measure	Reduction as Percent of Total VMT	
	Potential	Probable
Car-Pooling	24	2
Transit Improvements	16	10
Local Employment	23	21
Land Use	4	2

A combined program of most effective VMT mitigation measures has been evaluated and presented with projected VMT levels in Figure 5. The program assumes that about 2 percent mitigation will be achieved initially through car-pool formation. As car-pooling appears to have limited, unsustaining market response, it is assumed the BARTD/AC feeder bus service will benefit from coordinated routing and scheduling in a few years. It is also assumed that park-and-ride lots would be established, and their combined effect would reach 8 to 10 percent by 1980 to 1985. No distinction is made between transit and car-pooling at that point as it is assumed they will share the maximum "probable" market. By 1990 it is assumed the local job market will have grown to provide about a 10 percent reduction in VMT, which, combined with attrition in the commute force, indicates a total of 16 percent reduction by 1990. Maturing of the local job market, and development of the full force of other land-use-related measures portends a 23 percent reduction of the unmitigated VMT level by 2000.

Air Quality Implications. Significance of these vehicular travel reductions in terms of air quality is indicated in Figure 1. This is a significant reduction which would have a material improvement on Valley air quality. The range of adverse air quality days would be reduced from 9-17 annually in 1998 to a range of 8-14 days annually. Furthermore, on days which standards are not exceeded a significant reduction in pollutant emissions would also be achieved, thus lowering both peak and average concentrations throughout the year.

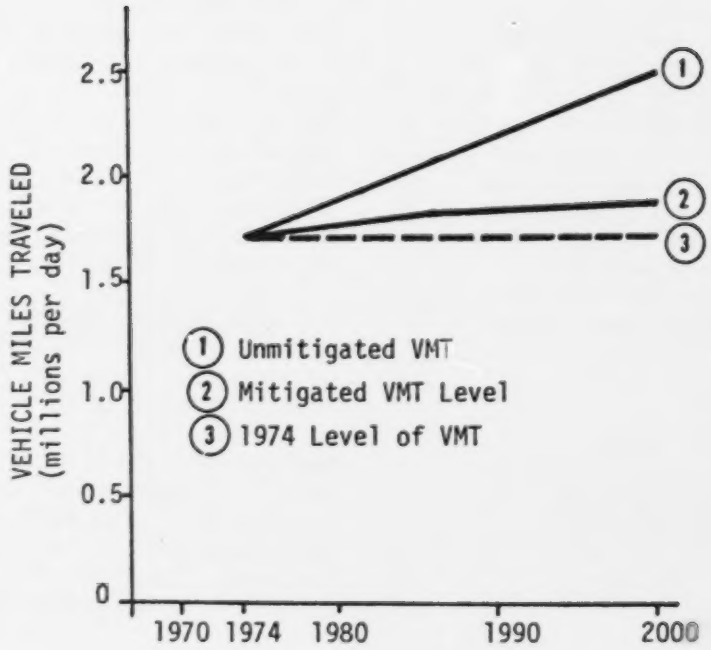

Figure 5. COMBINED EFFECTIVENESS OF THE COMMITTED VMT REDUCTION MEASURES AT THE "E-O, FUNDABLE" POPULATION

UNAVOIDABLE ADVERSE SECONDARY IMPACTS

Air quality is the remaining secondary impact which cannot be mitigated to acceptable levels, even at the lower E-O growth rate with mitigation measures applied to reduce vehicular travel. The evidence indicates that even a fairly strong program of transportation controls implemented by the local Valley Authority will not fully achieve air quality standards. The fact is that local transportation controls alone cannot achieve the desired levels. Through-traffic and imported oxidants which degrade Valley air quality are significant contributors which should be examined before more stringent methods than are earlier described are implemented within the Valley. Valley agencies' authority is very limited in this respect. This component of traffic and regional pollutant transport will be mitigated only by measures and policies adopted at regional, statewide, and even nationwide levels.

EPA DECISION AND RATIONALE

As discussed in Chapter 4 of the Final EIS, the proposed project will protect Valley and Niles Cone surface and groundwaters in a cost-effective, environmentally sound fashion. The primary impacts of project construction and operation will be reduced to minor levels except for energy consumption and removal of effluent from Alameda Creek and its tributaries. It is hoped that properly managed agricultural and landscape irrigation will greatly reduce the amount of effluent required to be removed from the Valley. With regard to preservation of in-stream and riparian stream values, it is hoped that increased releases from area reservoirs will continue to receive consideration by operating agencies.

As discussed in Chapter 5, the principal secondary impacts of the proposed project are decreased air quality, consumption of agricultural land and open space, increased user charges, provision of capacity to industrial and commercial development, and provision of capacity to residential development. While the proposed mitigation measures will reduce the severity of all but the user charge impacts, the impacts remain. EPA expects the Air Quality Maintenance Planning process and the General Plan revisions now underway to continue to reduce these adverse impacts. EPA feels that the responsible LAVWMA Agencies have shown good faith in their efforts to mitigate the impacts identified in the Draft EIS.

EPA finds, in conclusion, that the proposed project is environmentally sound and proposes to offer grant assistance in the amount of 75 percent of eligible project costs as determined by the State of California. Design considerations, such as surge ponds, will be detailed during final design and will be reviewed by the State of California to determine the most cost-effective option.